TEST REPORT

Applicant:	TFIVE PTY LTD
Address:	10/29 Lorne Ave Killara NSW 2071 Australia
Equipment Type:	Cube T1 Pro
Model Name:	CTP-R01
Brand Name:	Aqara
Test Standard:	Radiation Protection Series S-1 (refer section 3.1)
Sample Arrival Date:	Apr. 24, 2023
Test Date:	Apr. 25, 2023 - May 04, 2023
Date of Issue:	May 15, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Chen Huiming **Checked by:** Xu Rui **Approved by:** Tu Lang (Testing Director)

Revision History

Version	Issue Date	Revisions Content
Rev. 01	May 15, 2023	Initial Issue

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☑ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	TFIVE PTY LTD
Address	10/29 Lorne Ave Killara NSW 2071 Australia

2.2 Manufacturer Information

Manufacturer	Lumi United Technology Co., Ltd.
Address	Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	Cube T1 Pro
Model Name Under Test	CTP-R01
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	X1.0
Software Version	0.0.0_0023
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	Panasonic
	Model No.	CR2450
	Serial No.	N/A
	Capacity	620 mAh
	Rated Voltage	3 V
	Limit Charge Voltage	N/A

2.6 Technical Information

Network and Wireless connectivity	Zigbee

The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	Zigbee	
Frequency Range	Zigbee	2400 ~ 2483.5 MHz
Antenna Type	Zigbee	PCB Antenna
Exposure Category	General Population/Uncontrolled Exposure	
EUT Type	Portable Device	

3 STANDARD INFORMATION

3.1 Test Standards

No.	Identity	Document Title
1	Radiation Protection Series S-1(Rev. 1)	Radiation Protection Series S-1(Rev. 1) Standard for Limiting Exposure to Radiofrequency Fields - 100 kHz to 300 GHz
2	AS/NZS 2772.2:2016+AMD1:2018	Australian/New Zealand Standard Radiofrequency fields Part 2: Principles and methods of measurement and computation—3 kHz to 300 GHz
3	Radiocommunications Equipment (General) Rules 2021	Radiocommunications Equipment (General) Rules 2021
4	IEC 62479: 2010	Assessment of the compliance of low-power electronic and electrical equipment with the restrictions related to human exposure to electromagnetic fields(10 MHz to 300 GHz)

4 DEVICE CATEGORY AND LEVELS LIMITS

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the following limits.

For frequency range 10 MHz to 10 GHz

The basic restriction at frequencies between 10 MHz and 100 GHz is on localized SAR in the head. Any device with output power below 20 mW cannot produce an exposure exceeding this restriction under the most pessimistic exposure conditions. The basic restriction is 2 W/kg so any unit which supplies less than 20 mW (=2/100W) from its antenna port, averaged over 6 minutes, will meet the basic restriction.

For frequency range 10 GHz to 300 GHz

The most conservative assumption is that all the transmitted power is absorbed within the specified area, therefore any device which supplies less than 20 mW will meet the basic restriction. The average time is equal to 68/f-1.05 minutes (where f is in GHz) In the frequency range 10 GHz to 300 GHz, the basic restriction is 10 Wm-2 averaged over any 20 cm2 of exposed area with a spatial maximum of 200 Wm-2 averaged over 1 cm2

Criteria A: All electromagnetic fields

If the average power emitted by apparatus operating in the frequency range 10 MHz – 300GHz is less that or equal to 20 mW and the transmitting peak power is less than 20W then the apparatus is deemed to comply with the basic restrictions without testing. Averaging time is 6 minutes in the frequency range 10 MHz to 10 GHz. The average time is equal to 68/f-1.05 minutes (where f is in GHz) in the frequency range 10 GHz to 300 GHz.
If the total supply power or the input power to the circuitry producing the greatest emissions in the device is less than or equal to 20 mW then it is assumed that the emitted power is less than 20 mW.

Criteria B: Pulse modulated electromagnetic fields with pulse duration less than 30 microseconds

For pulses of duration less than 30 microseconds at frequencies between 300 MHz and 10 GHz, there is also a basic restriction on Specific energy absorption (SA). This is 2mJ kg-1 in any 10g of tissue in the head. For most pulses, the SAR restriction will be more stringent, but for pulses with a repetition frequency of less than 100 Hz, the SA restriction will predominate. For devices producing pulses with repetition rates below 100 Hz, the average power should be less than 20 x prf mW (pulse repetition frequency, prf in Hz).

An empirical equation developed by Sayem et al. (2009) may be used to calculate threshold power levels for wireless devices used close to the body and operating at frequencies from 300 MHz to 6 GHz. The

derivation of alternative low-power exclusion levels based on these equations is described in Annex B of the International Standard IEC 62479 (2010).

5 ASSESSMENT RESULT

5.1 Output Power

Zigbee	
EIRP (dBm)	9.70
EIRP (mW)	9.33
Limit (mW)	20.00
Note: This report listed the maximal case power value, please refer to BL-SZ2340713-601 report for more details.	

5.2 Conclusion

Note: The EIRP Power of Zigbee which are below the exempt condition, 20mW specified in IEC 62479: 2010. RF exposure assessment has been performed below to prove that this unit will not generate the harmful EM emission above the reference level as specified in AS/NZS 2772.2.

This EUT is deemed to comply with the reference level limits by AS/NZS 2772.2, therefore the basic restrictions are compliant with human exposure limits.

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